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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,807	01/21/2005	Masaki Irie	Q85854	3772

23373 7590 05/09/2007

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EXAMINER	
HU, HENRY S	

ART UNIT	PAPER NUMBER
1713	

MAIL DATE	DELIVERY MODE
05/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,807	IRIE ET AL.	
	Examiner	Art Unit	
	Henry S. Hu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Election of April 16, 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *9-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-15* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1-21-2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. As discussed earlier, USPTO has received **Pre-Amendment** and **IDS** (1 page) both filed on January 21, 2005. **Claim 3 was amended, while no claim was cancelled or added.** This Office Action is in response to **Election** filed on April 16, 2007. Applicants have elected **without traverse** for **Group I (Claims 1-8)**.

Claims 1-15 with **two** independent claims (**Claim 1 and Claim 9**) are now pending, while nonelected **Claims 9-10 and 15 (Group II), Claims 11 and 13 (Group III) and Claims 12 and 14 (Group IV)** are all withdrawn from consideration. An action follows.

Specification

2. The disclosure is objected to because of the following informalities:

On **pages 53 and 54**, Applicant is reminded of the improper language and format for an **abstract** of the disclosure.

The abstract has more than 150 words.

The abstract should be in narrative form and generally **limited to a single paragraph** on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means"

and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On **Claim 7** at line 3, the term "**essentially**" is a relative term, which renders the claim **indefinite**. The term " **essentially** " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. See MPEP § 2173.05(b).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. The limitation of parent **Claim 1** relates to ***a process for preparing a fluorine-containing polymer***, *which is a* ***batch copolymerization*** *process conducted under conditions of* ***reduced temperature of at least 0.95 and reduced pressure of at least 0.80 of the critical constant*** *calculated from critical temperature, critical pressure and composition ratio of each monomer in the gaseous phase of the reaction vessel* ***using the Peng-Robinson formula*** *as specified.*

See other limitations of dependent ***Claims 2-8****.*

7. **Claims 1-6** are rejected under 35 U.S.C. **102(b)** as being anticipated by **Brinati et al. (US 5,175,223** or its equivalent **EP 445,839 A1) or Enokida et al. (US 5,994,487),** or under 35 U.S.C. **102(a)/102(e)** as being anticipated by **Noda et al. (US 6,388,033 B2)**.

Three 102 rejections are applied. Regarding the limitation of parent **Claim 1**, each of **three** references including **Brinati, Enokida and Noda** has individually disclosed **a batchwise polymerization process for making fluoropolymers by using reduced temperature and reduced pressure**. After unit conversion to the same unit for pressure used in dependent Claim 2, the reduced numbers for temperature and pressure in combination with weight ratio of monomers are found to be at least overlapping the claimed numbers for temperature and pressure

calculated from **Peng-Robinson formula**. Therefore, each reference explicitly and/or implicitly anticipates the limitation of parent Claim 1.

8. To be specific, see **Brinati** at working examples for "batchwise polymerization"; the reduced temperature (**25-150 °C**) and the reduced pressure (**8-80 atmospheres**, which can be converted to **0.74-7.84 Mpa** since 1 atmosphere = 0.09807 MPa) for polymerization at column 2, line 34-36; the use of fluorinated monomers such as VDF, HFP and TFE at abstract, line 1-7; column 3, line 6-56; column 5, line 31-44.

See **Enokida** at working examples for "batchwise polymerization"; the reduced temperature (**80 °C**) and the reduced pressure (**at least 30 kgf/cm^2**, which can be converted to **2.94 Mpa** since 1 kgf/cm^2 = 0.09806 MPa) for polymerization at column 5, line 35-56; the use of fluorinated monomers such as VDF, HFP and TFE at abstract, line 1-7; column 1, line 54-63.

See **Noda** at abstract, line 1-2 and column 1, line 61-64 for "batchwise polymerization"; the reduced temperature (**95 °C**) and the reduced pressure (**4.2 MPa**) for polymerization at column 4, line 28-30; column 5, line 28-31; the use of fluorinated monomers such as VDF, HFP and TFE at column 2, line 28-55; column 5, line 20-44.

9. Regarding **Claims 2 and 4**, the reduced pressures in the unit of Mpa used by the involving references are overlapping with the claimed numbers.

Regarding **Claims 3 and 5**, fluorinated monomers used by the involving references are VDF, HFP, TFE and the like as discussed above. It is noted that open language "comprising" is applied to the copolymer from both Claims 3 and 5.

Regarding **Claim 6**, the reference has disclosed such a curable composition. For instance, see **Brinati** at column 3, line 38-43; and see **Enokida** at column 6, line 3-20.

10. **Claims 7 and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Brinati et al. (US 5,175,223** or its equivalent **EP 445,839 A1) or Enokida et al. (US 5,994,487)**, or under 35 U.S.C. 102(a)/102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Noda et al. (US 6,388,033 B2)**.

The above discussion of the disclosures of the prior art of **Brinati, Enokida and Noda** for Claims 1-6 of this office action is incorporated here by reference. Regarding dependent **Claims 7 and 8**, each reference including **Brinati, Enokida and Noda** is silent about **two** things including: (A) fluoropolymer's properties including Mooney viscosity and compression set (for Claim 7) and (B) fluoropolymer's ratio of weight average molecular weight to number average molecular weight (for Claim 8).

11. However, based on the rationale that polymers from prior art and instant application may have fundamentally the same monomeric composition as disclosed in instant parent Claim 1

along with its dependent Claims 3 and 5 and the fluoropolymer may be prepared from the same or at least similar batchwise polymerization, a reasonable basis exists to believe that the polymer filler of the invention inherently possess the same fluoropolymer's properties including Mooney viscosity and compression set as well as the same fluoropolymer's ratio of weight average molecular weight to number average molecular weight. Since the PTO cannot perform experiments, the burden is shifted to the applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP 2112-2112.02.

> It has been held that where applicant claims a composition in terms of function, property or characteristic where said function is not explicitly shown by the reference and where the examiner has explained why the function, property or characteristic is considered inherent in the prior art, it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon the applicant to provide clear evidence that the respective compositions do in fact differ. *In re Best*, 195 USPQ 430, 433 (CCPA 1977); *In re Fitzgerald et al.*, 205 USPQ 594, 596 (CCPA 1980).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to a process for preparing a fluorine-containing polymer with reduced temperature and reduced pressure following the Peng-Robinson formula:

US 6,806,332 B2 to Royer et al. or **US 6,914,105 B1 to Charpentier** et al. only discloses the preparation of continuous copolymerization in carbon dioxide medium (see abstract and title). **Peng-Robinson formula is mentioned** (see "105" at column 14, line 57-58; see "332" at column 17, line 58-59). Although fluorinated monomers are involved (see "105" at

column 6, line 27-32; see "332" at column 5, line 57-62), **the process is NOT a batchwise polymerization**.

13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Henry S. Hu

Patent Examiner, Art Unit 1713, USPTO

May 7, 2007

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